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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/719,970 | 11/21/2003 | Alan K. Wu | 60,680-756 | 3569 |
| 7590 02/09/2006 Dykema Gossett PLLC Suite 300 39577 Woodward Avenue Bloomfield Hills, MI 48304 | | | EXAMINER DUONG, THO V | |
| | | | ART UNIT 3753 | PAPER NUMBER |

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,970

Applicant(s)

WU ET AL.

Examiner

Tho v. Duong

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-15, 17-21 and 24-32 is/are pending in the application.
- 4a) Of the above claim(s) 19-21 and 24-26 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-10, 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 11-15 and 27-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

The indicated allowability of claim 11 (now claim 28) withdrawn in view of the newly discovered reference(s) to H. F. Bushchow. Rejections based on the newly cited reference(s) follow.

Applicant is required to amend the status identifier of claim 27, since claim 27 was not withdrawn but treated under merit.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-15 and 28-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claimed subject matter of “wherein the heat exchanger includes at least one radially inner circumferential flow passageway having an inner strip fin and at least one radially outer circumferential flow passageway having an outer strip fin” renders the scope of the claim indefinite since it is not clear if applicant is claiming that the heat exchanger has (a) three different pieces of fins which are a corrugated strip fin; an inner strip fin and an outer strip fin, or (b) the corrugated strip fin includes an inner strip fin and an outer strip fin. It appears in the claim that the applicant is claiming (a). However, the original disclosure discloses (b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27-29 are rejected under 35 U.S.C. 102(b) as being anticipated by H. F.

Bushchow (US 2,662,749). Bushchow discloses (figures 1-2) a heat exchanger comprising an outer tube (20) having an outer surface; an inner tube (16) received inside the outer tube and concentric therewith, wherein an axial fluid flow passage is formed between the inner and outer tubes; a first inlet (14) and a first outlet (13) in fluid communication with the axial passageway, the first inlet and the first outlet being axially spaced from one another; at least one circumferential fluid passageway being formed along the outer surface of the outer tube (helical passageways formed between helix fins); and a corrugated strip fin (80) being arranged in the circumferential fluid flow passageways, each of the strip fins comprising a plurality of rows of corrugations (81), the corrugations each comprising a top portion, a bottom portion and a side wall connecting the top and bottom portion, the bottom portions of the corrugations being in contact with the outer tube; the heat exchanger include at least one radially inner circumferential flow passageway (37') having an inner strip fin (46) and at least one radially outer circumferential flow passageway (38') having an outer strip fin (50), the inner and outer strip fins being in thermal contact with one another; and flow communication is provided between the inner and outer flow passageways.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Conffinberry (US 4,096,616) in view of F. A. Burne et al. (US 3,323,586). Conffinberry discloses a heat exchanger comprising an outer tube (22) having an outer surface; an inner tube (24) received inside the outer tube and concentric therewith, wherein an axial fluid flow passageway (28) is formed between the inner and outer tubes; a first inlet and a first outlet in fluid communication with the axial passageway, the first inlet and the first outlet being axially spaced from one another; at least one outer fluid passageway (26) being formed along the outer surface of the outer tube; a corrugated strip fin (34) being arranged in the outer fluid passageways; each of the strip fins comprising a plurality of rows of corrugation; the corrugation each comprising a top portion, a bottom portion, and a side wall connecting the top and bottom portions, the bottom portion being in contact with the outer tube. Conffinberry does not disclose that the outer passageway is a circumferential fluid flow passageway. Burne discloses (figures 1-3 and column 3, lines 49-65) a concentric tube heat exchanger having an axial flow passageway formed between the inner tube and an outer tube and an outer passageway formed outside of the outer tube, wherein the outer fluid passageway (23) includes two circumferential fluid passages that has each fin (15) located in each of the circumferential passage with gaps (21, 22) between the

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edges of the fin for the purpose of increasing heat exchanger surfaces area and minimizing pressure drop of the heat exchanger due to the circuitous peripheral flow paths. Since Conffinbery and Burne are both from the same field of endeavor and/or analogous art, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use Burne's teaching of peripheral flow path in Conffinbery's heat exchanger for the purpose of increasing heat exchanger surfaces area and minimizing pressure drop of the heat exchanger due to the circuitous peripheral flow paths.

Allowable Subject Matter

Claims 1-3,5-10 and 17-18 are allowed.

Claims 30-32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tho v. Duong whose telephone number is 571-272-4793. The examiner can normally be reached on M-F (first Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keasel Eric can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

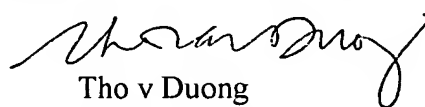
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TD

February 3, 2006



Tho v Duong
Primary Examiner
Art Unit 3753